

Robinson, Jesse (EEC)

From: Robinson, Jesse (EEC)
Sent: Thursday, July 23, 2009 9:20 AM
To: Zimmerman, Joseph (FW); 'Jarrett, Patti G LRL'; Grant, Alan (EEC)
Cc: 'Joe Eigel'; Lawson, Wanda; Hall, Stephen
Subject: RE: LRL-2008-1249-pgj Locust Creek Lawrence County

Attachments: fischinick_threshold_guidance_sr29.pdf



fischinick_threshold
guidance...

Hi everyone,

I didn't intend to imply a direct comparison between KY-15 and Locust Creek (to be honest, in my example, it had a lot more to do with the use of a particular kind of structure and the risks associated with that. Sorry if that wasn't clear). I had intended to draft a response directly to KDFWR that would more completely encompass our concerns. Since the cat is out of the bag, here is what I wrote to Patti. Just so we're clear: I asked Art to send me a paper he referenced in the field when we were out on a Natural Channel Design Working Group. I did not consult with him or anyone else on the Locust Creek project.

Attached is the paper I referenced on the phone regarding shear stress thresholds for a variety of materials from Art. It's very handy. It's also clear from looking at the numbers provided in Appendix J *in the Locust Creek Mitigation Plan* (Shear Stress Analysis) that there is strong potential for erosion and loss of stability in channel and floodplain materials. Reaches 1, 2, 3 and 4 are all incised at present, and my concern with the application throughout the review process has been that the design has not incorporated sufficient floodplain access (or perhaps couldn't) in these headwater areas. Part of the issue is that the slopes in these areas are very steep (reach 2 is at 15%). The other issue is that the streams are extremely incised, and increasing floodplain access requires a massive amount of earthmoving, and potentially the loss of landowner access to the area. I have attached a picture of Reach 3 at one headcut.

Look at table 2. The permissible shear stress for Hardwood tree plantings maxes out at 2.5. Assuming a factor of safety, this number would have to be further reduced (perhaps to below 2.0 lb/ft²). At present, Reaches 1, 2, 3, 3A and 4 all exceed this number. In the case of Reaches 1 and 2, they exceed it by nearly a factor of 3. This, of course, is for floodplain stability. Channel stability is equally dicey, with values approaching 10 lb/ft² for several reaches. The specifics may vary, but these values could potentially mobilize material with a beta axis of 24 inches.

Further adding to my concern is that I have visited several Stantec designs recently, and several of the step pools (the proposal for headwater reaches) are in very poor shape. A picture of the stream restoration associated with KY 15 in Breathitt County is attached. Not all of the structures look like this, but a significant number do (perhaps 30%), and the restoration is only a few years old. Note that this structure has collapsed in on itself, and the banks have eroded around it. Even if the structure material is stable, it is going to be nearly impossible for the bank material to remain intact at the shear stress values proposed.

As you folks know, we do the best we can with the tools at hand. Presently, everything I have tells me that the numbers provided exceed the tolerance for the materials which will be used. If you have additional supporting information that would run contrary to that I would certainly appreciate seeing it.

I also recognize that this work requires compromise between cost, landowner concerns,

and probably a number of factors that I'm not aware of. The headwater sections likely never had extensive floodplain access given how confined they are, and I can appreciate that. As noted, they are also very steep, and seem to lack bedrock in areas which would provide a natural level of control. I'll leave it to those with more qualifications to figure out how these headwater reaches were stable pre-settlement.

We will look for your response and go from there. Thanks for your consideration of this issue.

Regards,

Jesse Robinson
Environmental Biologist
Kentucky Division of Water
Water Quality Certification
(502) - 564 - 3410 ext. 4863

-----Original Message-----

From: Zimmerman, Joseph (FW)
Sent: Wednesday, July 22, 2009 4:16 PM
To: 'Jarrett, Patti G LRL'
Cc: Robinson, Jesse (EEC); Joe Eigel
Subject: RE: LRL-2008-1249-pgj Locust Creek Lawrence County

Patti,

Stantec is putting together some information on the high boundary stress numbers at Locust Creek. They will also address the differences between KY-15 and Locust. It is difficult and probably unnatural to have low boundary stress numbers on streams with slopes greater than 2%. This is due to the natural entrenchment and steep slopes. I will forward on the info as soon as I get it. Thanks.

Joseph Zimmerman
Kentucky Wetland and Stream Mitigation Program Kentucky Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601
(502) 564-7109 ext. 4453
(800) 858-1549 ext. 4453
(502) 545-1956 cell

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-----Original Message-----

From: Jarrett, Patti G LRL [mailto:Patti.G.Jarrett@usace.army.mil]
Sent: Wednesday, July 22, 2009 3:06 PM
To: Zimmerman, Joseph (FW)
Cc: Robinson, Jesse (EEC)
Subject: RE: LRL-2008-1249-pgj Locust Creek Lawrence County

Joseph:

I received the t/e clearance letter and the revised mitigation plan. I sent KYSHPO a letter today requesting comments on the 106 report within 30 days. However, the application is still considered incomplete until KDOW's NOD has been addressed. Please let me know if you have any additional questions.

Patti

Patricia A. Grace-Jarrett, Ph. D.

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-----Original Message-----

From: Jarrett, Patti G LRL
Sent: Friday, July 10, 2009 11:46 AM
To: 'Zimmerman, Joseph (FW)'
Subject: RE: LRL-2008-1249-pgj Locust Creek Lawrence County

Nope. I'm waiting on the following:

1) Section I06 clearance. I never received the Phase I report. Since we requested the phase I study, we still have to do an effects determination and I can't do that without a copy of the report. (see our letter dated May 8, 2009.

2. revised mitigation plan that incorporates kdw comments (march 27, 2009 letter).

3. t/e clearance letter from usfws.

Patricia A. Grace-Jarrett, Ph. D.

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-----Original Message-----

From: Zimmerman, Joseph (FW) [mailto:joseph.zimmerman@ky.gov]
Sent: Friday, July 10, 2009 10:22 AM
To: Jarrett, Patti G LRL
Subject: LRL-2008-1249-pgj Locust Creek Lawrence County

Patti,

Have you issued the permit for Locust Creek? Stantec asked for a signed copy, but I don't think we have received it yet.

Joseph Zimmerman

Kentucky Wetland and Stream Mitigation Program

Kentucky Department of Fish and Wildlife Resources

#1 Sportsman's Lane

Frankfort, KY 40601

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